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Atty Dkt No. GP-302711 (GM-0330PUS)

REMARKS

Claims 1-28 are pending in this application. Claims 1-18 and 20-28 are rejected under 35 U.S.C. § 112 and claims 1-8, 16, 19, 20, 23-28 are rejected under 35 U.S.C. § 102. Claims 1, 2, 19, 20, 21, 25, 26, and 28 are currently amended and the remaining claims, all of which depend from a currently amended claim, are believed to be allowable in their original form.

Claim Rejections Under 35 U.S.C. § 112, first paragraph

The Examiner has rejected claims 1-18 and claims 20-28 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The Examiner states that:

The claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not disclose how a complicated structure such as the inner and outer member can be made in one-piece. Furthermore, constructing the inner or outer member from a single sheet of material seems to be impractical.

The CAFC has indicated that the test of enablement is whether one reasonably skilled in the art could make or use the inventions from the disclosures in the patent contemplated with the information known in the art without undue experimentation. *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). See also MPEP 2164.01. As discussed below, Applicants submit that an engineer of ordinary skill in automotive design and body forming processes would readily understand

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how to apply the methods discussed in the Application and/or incorporated therein by reference to make one-piece inner member as the one-piece outer member described.

With respect to the Examiner's statement that "the specification does not disclose how a complicated structure such as the inner and outer member can be made in one piece", Applicants' specification and claim 1 et seq. require "a one-piece inner member mated with a one-piece outer member, .." That's two (2) pieces, not one piece. Further Applicants direct the Examiner's attention to paragraph [0027] of the Specification, in which "a method of assembling a vehicle 78 that includes a body and frame assembly such as that shown in Figure 2a" is described. Specifically, paragraph [0027] teaches that:

The method 78 may include forming 80 the inner member 42 by quick plastic forming, super plastic forming or hydroforming. The invention contemplates that the outer and the inner members 10, 42 may each be formed from a single separate rigid sheet. Preferably, the sheets are aluminum. Forming may be by a quick-plastic forming method, a super-plastic forming method or a hydroforming method. Quick plastic forming is described in U.S. Patent No. 6,253,588, issued July 3, 2001 to Rashid, et al and assigned to General Motors Corp., which is hereby incorporated by reference in its entirety. Superplastic forming is described in U.S. Patent No. 5,974,847, issued November 2, 1999 to Saunders, et al and assigned to General Motors Corp., which is hereby incorporated by reference in its entirety. Hydroforming is also a feasible method of forming vehicle body panels and frame sections.

Thus, the Application, including the incorporated descriptions of Rashid et al. and Saunders et al., teaches that quick plastic forming, super plastic forming or hydroforming may be used to form each of the claimed one-piece inner and outer members. Rashid et al. fully describes a quick plastic forming process that may be used "to enable the

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practical production of robust automobile body panels and the like of complex shape". (Col. 2, lines 31-32) "In a preferred embodiment ..., large AA5083-type aluminum-magnesium sheet stock may be formed into a complex three-dimensional shape ..." (Col. 3, lines 6-9) In fact, Rashid et al. provides in exacting detail appropriate sheet material, temperature and pressure ranges and processing times for stretch forming an automobile decklid panel against a sculpted surface forming tool. Rashid et al. provides that:

As an example, an automobile decklid outer panel was stretch formed from AA5083 sheet, 1.2 millimeter thick. The decklid panel (illustrated in FIG. 1) represented a *challenging* one-step, *one-piece* forming operation because of the normal curvature of a decklid in combination with an integral, deep, generally rectangular license plate recess.
(Col. 3, lines 31-35) (emphasis added)

Rashid et al. emphasizes that "[i]n a typical stamping, the forming of deep recess 26 is very difficult to accomplish *within the same sheet metal piece* as the rest of the decklid is formed." (Col. 5, lines 15-18) Thus, the quick plastic forming process taught by Rashid et al. enables the formation of complex shapes, such as a rectangular recess, using only one sheet of metal. Applicants note that the claimed one-piece inner member 10 and one-piece outer member 42 are each generally a series of recesses. A typical cross section, as shown in Figure 2a, illustrates that both the inner member 10 and the outer member 42 form channel shapes. See paragraph [0026]. The channels are, in essence, similar to the rectangular recess shown and described in Rashid et al. The sculpted forming tools used to make the decklid 10 of Rashid et al. need only be designed and arranged in a shape mimicking that of the opposing side frame portions extending outward from the roof panel portion to make the claimed one-piece inner or outer members. Applicants submit that a person of ordinary skill in the art would readily understand how to use the quick plastic forming method described in Rashid et al. to make the claimed one-piece inner member and one-piece outer member.

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Additionally, after the one-piece sheet is stretch formed to acquire the desired contours of the one-piece inner member or the one-piece outer member, paragraph [0028] of the Specification provides that a trimming operation may be employed to:

[R]emove excess sheet material to further define the desired shape of the inner member 42 and of the outer member 10, respectively. Trimming may be accomplished by mechanical cutting or by laser cutting. A variety of trimming methods would be readily apparent to those skilled in the art.

A person of ordinary skill in the art would realize from this teaching that trimming may be employed in certain areas, such as in the area between the respective roof panel portion, the pillar portions and rocker portions that is to form the enclosed door openings on the respective inner and outer members (i.e., trimming would be used to remove the sheet material in these areas to create a door opening). It is noted that the Examiner interpreted "trimming" as used in claims 23 and 24 to mean attaching components, such as doors, to the inner and outer members (see discussion below with respect to rejection of claims 23 and 24 under 35 U.S.C. § 102(b)). However, paragraph [0028] makes clear that trimming, as used in the Application, means a cutting method.

In addition to trimming, the Application teaches that a series of bending steps may be applied to the side frames to achieve the claimed generally downward extension of such from the respective roof panel portions. Additionally, the Examiner's attention is directed to paragraph [0029] of the Specification which states:

The method may further include bending the inner member such that the inner side frame portions 50, 52 extend generally downward from the inner roof panel portion 44 as depicted in Figure 1b. The method 78 may further include bending the outer member 100 such that the first outer side frame portion 18 and the second outer side frame portion 20 extend generally downward

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from the outer roof panel portion 12 as depicted in Figure 1a. Bending may be accomplished by a press bend machine. Multiple bending cycles may be employed in order to obtain the desired shape. Additionally, those skilled in the art will recognize a variety of other techniques for bending the outer member 10 and the inner member 42.

The Application also enables the formation of a one-piece outer member 10 and a one-piece inner member 42 by a superplastic forming process, such as is described in Saunders et al., for:

[S]tretch forming a ductile metal sheet into a complex shape involving significant deformation without excessive thinning of sheet material and without tearing it.
(col. 2, lines 37-40)

Saunders et al. teaches that:

An advantage of SPF processes is that they often permit the manufacture of large single parts that cannot be made by other processes such as sheet metal stamping. Sometimes a single SPF part can replace an assembly of several parts made from non-SPF materials and processes.

Specifically, Saunders et al. teaches a superplastic forming method that requires displacing the sheet with solid die elements prior to using differential gas pressure to stretch the sheet into conformity with a die surface.

The process of this invention was demonstrated in the making of a blow-formed pan shown schematically in FIG. 1. Pan 10 is generally rectangular with an inside length of 386 mm and an inside width of 309 mm. The radius 16 between side walls 12 and

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end walls 14 is 76.6 mm. The depth of the pan is 127 mm. The radius 20 between the bottom 18 of pan 10 and the side 12 and end 14 walls is 25.4 mm. The radius 24 between the top flange 22 and the side and end walls is 8.1 mm. The pan configuration was chosen for evaluation of the subject SPF stretch-forming process because it requires drastic elongation and deformation of portions of a sheet blank and often results in excessive thinning or tearing of the material, particularly in the region of the bottom 18 or bottom radius 20.
(col. 3, lines 39-53)

Like the license plate recess 26 formed in the decklid 10 by quick plastic forming under Rashid et al., the pan 10 of Saunders et al. has a generally rectangular deformation of the sheet, similar to the channels that must be formed in the outer member 10 and inner member 42, as illustrated in Figure 2b of the Application. Saunders et al. provides that:

A variety of insert geometries can be used to produce draw-in including domes and cylinders. The amount of draw-in is controlled by the height, shape and position of the male preform.
(col. 5, lines 47-50)

Accordingly, Saunders et al. teaches that its patented superplastic forming process may be used to achieve a variety of complex shapes from a single sheet simply by varying the die and preform shapes. In fact, the depth of the channels required for the one-piece outer member 10 and the one-piece inner member 42 are much less than the depth of the pan 10 produced under Saunders et al., indicating an achievable SPF design.

The Application provides that the one-piece outer member 10 and the one-piece inner member 42 may be made by a sheet hydroforming process. Sheet hydroforming is well known by those skilled in the art to allow production of a variety of

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complex shapes from a single sheet not achievable using a conventional stamping process.

With respect to the Examiner's contention that:

[C]onstructing the inner or outer member from a single sheet of material seems impractical[.]

the Examiner's attention is directed to Rashid et al. which indicates that, with the quick plastic forming process described, "significantly faster *and more practical* forming (at least for the automobile industry) times are achieved." (Col. 3, lines 53-54) (emphasis added)

Engineers are available to submit affidavits declaring that a person of ordinary skill in the art would readily understand how to make and use the one-piece inner member and the one-piece outer member without undue experimentation based upon the Application, including the teachings of Rashid et al. and Saunders et al., commonly assigned with this Application, which are incorporated therein by reference. Accordingly, Applicants respectfully request that the Examiner reconsider the rejection under Section 112, first paragraph of claim 1, and claims 2-18 which depend therefrom, as well as claim 20, and claims 21-28 which depend therefrom.

Claim Rejections Under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1-8, 16, 19, 20, and 23-28 under 35 U.S.C. § 102(b) as being anticipated by Schroeder et al., United States Patent No. 6,457,768. As indicated by the Examiner, Schroeder et al. discloses:

a body and frame assembly for a vehicle comprising a one-piece inner member (16) mated with a one-piece outer member (12), said members defining door openings for opposing sides of the vehicle.

As may be seen in Figure 2 of Schroeder et al., the one-piece outer member 12 defines door openings for only the left side of a vehicle and the one-piece inner member 16

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defines door openings for only the right side of the vehicle. However, under amended claim 1 and claims 2, 4, 5, 6, 7, 8, and 16 which ultimately depend from claim 1, "each of [the inner and outer] members defin[e] door openings for opposing sides of the vehicle." (emphasis added) As may be viewed in Figure 1a, and as described in paragraph [0015] of the Application, the outer member 10 forms door openings 22A and 23A extending from the outer roof panel portion first end 14 and door openings 22B and 23B extending from the opposing outer roof panel portion second end 16 (i.e., on opposite sides of a vehicle as shown in Figure 2a). Similarly, as illustrated in Figure 1b and described in paragraph [0022], the inner member 42 forms door openings 69A and 70A extending from the inner roof panel portion first end 46 and door opening 69B and 70B extending from the opposing inner roof panel portion second end 48 (i.e., on opposite sides of the vehicle as shown Figure 2a). For a rejection to be proper as an anticipation under 35 U.S.C. § 102, every element and limitation found in the rejected claim must be found in the 102 reference. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See MPEP §2131. Thus, because Schroeder et al. does not provide inner and outer members each of which define door openings for opposing sides of the vehicle, Schroeder et al. does not anticipate claim 1, nor claims 2-8 and 16 which depend therefrom.

With respect to dependent claim 3, the Examiner finds that the first inner and first outer side frame portions of Schroeder et al.:

[S]ubstantially define at least two door openings and the second inner and second outer side frame portions substantially define at least two other door openings (see figure 2).

The Examiner defines the first inner side frame portion of Schroeder et al. to be the unmarked support for the windshield extending from 92'. The Examiner finds the second inner side frame portion to be the structure referred to as 22', referred to in Schroeder et al. as "generally vertical side". See col. 2, line 48; col. 3, lines 31-36. Similarly, the

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Examiner defines the first outer side frame portion to be the structure labeled 30 and the second outer side frame portion to be the structure labeled 36, referred to respectively in Schroeder et al. as the "A" pillar member and the "C" pillar member. Applicants submit that the Examiner-named first inner side frame portion and first outer side frame portion 30 do not substantially define "at least two door openings", as required by claim 3. In fact, the first inner side frame portion only partially, but not substantially, defines a right front passenger door opening and the first outer side frame portion 30 only partially, but not substantially, defines a driver's door opening. Similarly, the second inner side frame portion 22' only partially, but not substantially, defines a right rear door opening and the second outer side frame portion 36 only partially, but not substantially, defines a left (driver's side) rear door opening. In fact, each of the Examiner-named first inner, first outer, second inner and second outer frame portions defines at most only a quarter of a door opening. This is in sharp contrast to Applicant's first outer side frame portion 18 of Figure 1 which substantially defines right front and right rear door openings and Applicant's second outer side frame portion 20 of Figure 1 which substantially defines left front and left rear openings. Similarly, Applicant's first inner side frame portion 50 of Figure 1b substantially defines right front and right rear door openings and Applicant's second inner side frame portion 52 of Figure 1b substantially defines left front and left rear door openings. Because the first inner and first outer side frame portions of Schroeder et al. do not "substantially define at least one door opening" and the second inner and second outer side frame portions of Schroeder et al. do not "substantially define at least one other door opening", as required by claim 3, Schroeder et al. does not anticipate claim 3. Accordingly, the rejection of claim 3 under Section 102(b) is believed to be overcome for this reason also.

Claim 19 has been amended to specify that each of the inner and outer roof panel portions have "opposite ends respectively at opposing sides of [the] vehicle". Accordingly, because the first and second inner side frame portions and the first and second outer side frame portions extend from the opposite ends, the side frame portions of claim 19 are at opposite sides of the vehicle. As discussed above with respect to claim 1, Schroeder et al. does not teach inner and outer members having side frame portions

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disposed at opposite sides of the vehicle. Accordingly, the rejection of claim 19 under Section 102(b) is believed to be overcome.

Claim 20 has been amended to recite "mounting the inner and outer members to each other such that each of the inner and outer members defines door openings at opposing sides of the vehicle." (emphasis added) As discussed above with respect to amended claim 1, the inner member 16 and the outer member 12 of Schroeder et al. each define door openings on only one side of the vehicle, not on opposing sides of the vehicle. By contrast, Applicants' one-piece inner member 10 and one-piece outer member 42 described in claim 20 each define door openings at opposing sides of the vehicle, as shown in Figures 1a, 1b, 1c and 2a. Accordingly, because Schroeder et al. does not describe inner and outer members that allow "mounting the inner and outer members to each other such that each of the inner and outer members defines door openings at opposing sides of the vehicle" the rejection of claim 20 under Section 102(b) is believed to be overcome. At least for this reason, the rejections under Section 102(b) of claims 23, 24, 25, 26, 27 and 28 which depend from claim 20 are also believed to be overcome.

With further respect to claims 23 and 24, the Examiner found that Schroeder et al. teaches "trimming the inner member" and "trimming the outer member" as required by the respective claims. In both instances, the Examiner found trimming under Schroeder et al. to be "with doors for example". However, as discussed above with respect to the rejection under Section 112, first paragraph, the Application clearly states that trimming is a cutting process. Schroeder et al. does not teach such trimming with respect to the Examiner-named inner and outer members found therein. Accordingly, because Schroeder et al. does not teach "trimming the inner member" or "trimming the outer member" as defined by the Application, for this reason also, the rejections under Section 102(b) of claims 23 and 24 are believed to be overcome.

With further respect to claims 25 and 26, the Examiner found that Schroeder et al. teaches "modifying the inner member such that it defines holes for door hinges, wiring and trim components" and "modifying the outer member such that it defines holes for door hinges, wiring and trim components" as required by the respective claims. In both instances, the Examiner states that "the door openings are holes for trim

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members, namely doors and their associated components". However, paragraph [0030] of the Application defines "modifying to define holes" as including "laser cutting or mechanically cutting holes for door hinges, wiring or trim components". In Figure 1a, a trim component hole 38A is shown cut in the outer member 10 to permit, "[f]or example, a B pillar decorative panel [to] be mounted to the trim component hole 38A" as described in paragraph [0018]. Similarly, a trim component hole 38B is shown in the first inner side frame C pillar 64A in Figure 1b. Paragraph [0023] of the Application provides that "[t]he trim component hole 38B may be used to mount a decorative panel to the inner member 42, such as a C pillar interior decorative panel to a portion of the C pillar 64A." Thus, it is clear from the Specification that Applicants did not intend the holes for trim components recited in claims 25 and 26 to include holes for entire doors. Claims 25 and 26 have been amended to clarify that the trim components recited therein are "other than doors." Schroeder et al do not teach "modifying the inner member such that it defines holes for ... trim components other than doors" nor "modifying the outer member such that it defines holed for ... trim components other than doors." Accordingly, with these amendments, it is believed that the rejections of claims 25 and 26 under Section 102(b) are overcome for at least these reasons also.

Claim 28 has been amended to require that "each of the inner and outer members" described under the providing step "defines door openings at opposing sides of the vehicle." As discussed above with respect to claims 1 and 20, Schroeder et al. does not provide such structure. Accordingly, for at least this reason also, the rejection of claim 28 under Section 102(b) is believed to be overcome.

Conclusion

In light of the above remarks with respect to the rejection of claims 1-18 and 20-28 under Section 112, first paragraph, and in light of the amendments to claims 1, 2, 19-21, 25, 26 and 28, it is believed that all claims are in condition for allowance, which action is respectfully requested.

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Respectfully submitted,

TOMMY E. WHITE, et al.

By Christopher W. Quinn
Reg. No. 38,274Date: 7/22/04QUINN LAW GROUP, PLLC
38701 W. Seven Mile Road, Ste. 295
Livonia, Michigan 48152
Phone: 734-838-0777
Fax: 734-838-0779*On behalf of:*Kathryn A. Marra
GENERAL MOTORS CORPORATION
Legal Staff Mail Code 482-C23-B21
P.O. Box 300
Detroit, Michigan 48265-3000